

NEWS TODAY

India's first robotic system performs Telesurgeries

India's indigenous Surgical robotic system, **SSI Mantra**, performed two **world-first robotic cardiac telesurgeries** with latency of only 40 milliseconds.

➤ **Telesurgery** uses robotics and cameras to allow surgeons to perform operations from any location with a high-speed data connection.

About SSI Mantra

- It is the **only robotic system worldwide to receive regulatory approval** for telesurgery and tele-proctoring.
 - ⊕ Recently, it was approved by the **Central Drugs Standard Control Organization (CDSCO)**, central regulatory body under the Drugs & Cosmetics Act, 1940.
- It performed the robotic beating heart **Totally Endoscopic Coronary Artery Bypass (TECAB)**, considered one of the most complex cardiac surgical procedures.

Other Key Applications of Robotics in Healthcare

- **Safety & Monitoring Robots:** Telepresence systems use computer vision technology to monitor the patient's vitals
- **Robotic Prosthetics:** Advanced robotic prosthetics improve mobility and functionality for amputees. E.g. Robotic limbs and exoskeletons
- **Sanitation and Disinfection Robots:** Utilises **ultraviolet-C (UV-C) light** or hydrogen peroxide vapour (HPV) for cleaning identified areas.
- **Medical Transportation Robots:** Deliver supplies, medications, and meals to patients etc.

Associated Challenges: High initial cost, skill and training gap to operate intricate robotic systems, ethical concerns (who will be accountable for potential errors), Patient trust, etc.

Indian Initiatives to Integrate Robotics in Healthcare

- **National Health Policy, 2017:** Recognizes the significant role of technology in healthcare delivery.
- **Draft National Strategy on Robotics, 2023:** It emphasised promotion of robotics including in healthcare and provides for setting up of the **Robotics Innovation Unit (RIU)**.
- **Other:** Artificial Intelligence & Robotics Technology Park (ARTPARK) in IISc Bengaluru

INTERPOL publishes its first-ever Silver Notice targeting criminal assets

New Silver Notice is part of a **pilot phase** involving 52 countries (including **India**) and will aid in fighting **transnational organized crime**.

About the Silver Notice

- It is the **newest addition** to INTERPOL's suite of **colour-coded Notices, targeting criminal assets**. (See image)
- It will facilitate locating, identifying, and obtaining **information about laundered assets** including properties, vehicles, financial accounts and businesses.
- **Silver Notice** aids members in **requesting information on assets linked to a person's criminal activities** such as **fraud, corruption, drug trafficking, environmental crime** etc.

About INTERPOL Notices

- They are **international requests for cooperation or alerts** allowing **police** in member countries to **share critical crime-related information**.
- There are **8 types of Notices** apart from the **INTERPOL-UNSC Special Notice**.
- **Issued by:** General Secretariat
- Notices can be **requested by:**
 - ⊕ A member country's **INTERPOL National Central Bureau**
 - ⊕ **International Criminal Tribunals** and the **International Criminal Court** (related to **genocide, war crimes, and crimes against humanity**)
 - ⊕ **United Nations** (for implementation of sanctions imposed by the **Security Council**)



About International Criminal Police Organization (INTERPOL)

- It was founded in **1923** as **International Criminal Police Commission (ICPC)** at the **2nd International Criminal Police Congress in Vienna, Austria**.
- It is the **only organization** with the mandate and technical infrastructure to **share police information globally**.
- **India** joined Interpol in **1949**, CBI is designated as **National Central Bureau of India for ICPO-INTERPOL**.

India's poverty rate falls below 5% in 2024, extreme poverty nearly eradicated: SBI Report

Recent poverty estimates are supported by data from the government's Consumption Expenditure Survey.

- These new poverty estimates are based on an inflation adjustment to 2011-12 poverty line computed by Suresh Tendulkar committee.

Key findings

- **Rural poverty:** Decreased to 4.86% in FY24 from 7.2% in FY23 and 25.7% in FY12.
- **Urban poverty:** Dropped to 4.09% from 4.6% in FY23 and 13.7% in FY12.
- **Reasons behind Improvement:** Due to higher consumption growth among bottom 5% of population, causing a shift in poverty line.

- ⊕ The **poverty line** is minimum expenditure (or income) required to purchase a basket of goods and services necessary to satisfy basic human needs.

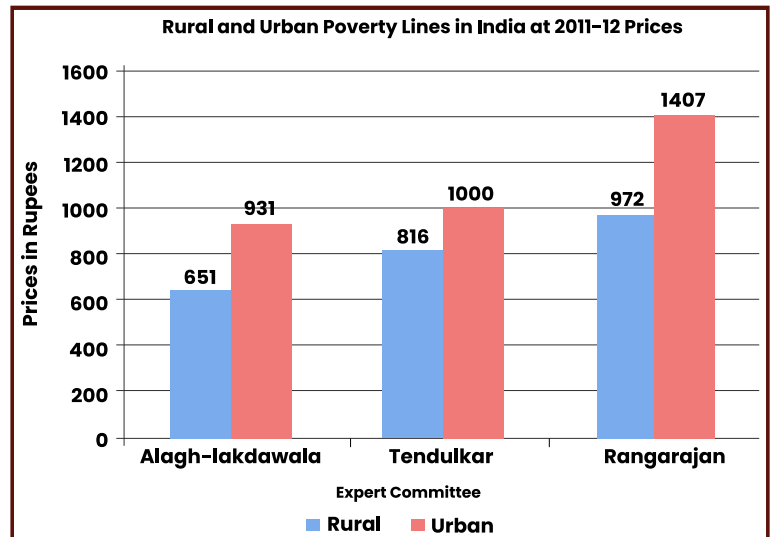
- ⊕ Individuals with income levels below these thresholds are classified as poor.

Poverty estimation in India (Major Committees)

- **Lakdawala Committee (1993)** recommended calculating poverty based on consumption expenditure related to calorie intake.
- **Tendulkar Committee (2009)** shifted away from calorie-based poverty lines and introduced a uniform all-India urban Poverty Line Basket.
- **Rangarajan Committee (2014)** reinstated separate rural and urban poverty lines and state-specific estimates.

Government's initiative for poverty eradication

- **Affordable Healthcare:** Ayushman Bharat Yojana, Pradhan Mantri Bharatiya Janaushadhi Pariyojana etc.
- **Social Security and Empowerment:** Pradhan Mantri Matru Vandana Yojana, Pradhan Mantri Garib Kalyan Anna Yojana, etc.
- **Financial Inclusion:** PM Jan Dhan Yojana, PM Ujjwala Yojana etc.
- **Employment and Skill Development:** MGNREGA, PM Kaushal Vikas Yojana etc.



National River Traffic and Navigation System (NRT&NS) launched

NRT&NS aims to promote safety and smooth operation of inland vessels.

- It has been launched at the 2nd meeting of the **Inland Waterways Development Council (IWDC)**.
 - ⊕ **IWDC** (set up in 2023) is an apex meeting platform for policy deliberation for promotion & propagation of inland waterways in India.

Other Developments

- Setting up Nine **Regional Centres of Excellence (RCoE)** to train and innovate in the IW Transport sector.
- Mooted idea of launching **Riverine Community Development Scheme** to improve socio-economic well-being of communities through infrastructure, trade, tourism, and skill development.





Inland Waterways in India

- **Status:** 111 waterways have been declared as **National Waterways (NWs)** under the **National Waterways Act, 2016**.
- **Important NWs:** NW-1 (Haldia – Prayagraj on Ganga-Bhagirathi-Hooghly River System), NW-2 (Dhubri – Sadiya on River Brahmaputra), etc.
- **Institutional Structure:** **Inland Waterways Authority of India (IWAI)** established through IWAI Act, 1985 is responsible for the regulation and development of NW.
- **Potential:** India has around 14,500 km of navigable waterways, including rivers, canals, backwaters, and creeks

Significance of NW

- **Infrastructure Efficiency:** E.g. Avoid land acquisition issues,
- **Facilitating International Trade:** E.g. Indo-Bangladesh protocol boosts trade by using NW-1 and NW-2
- **Other: Environmental Benefits** (fuel-efficient), **Regional and Coastal Development** (E.g. North east India) etc.

Initiatives to Enhance Inland Waterways

 <p>Infrastructure Developments Construction of Multi-Modal Terminals (MMTs)</p>	 <p>Inland Vessels Act 2021 Legislation for safe vessel movement</p>	 <p>Jalvahak Scheme Scheme for cargo delivery via waterways</p>	 <p>River Cruise Tourism Development of river cruise routes</p>
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Key Challenges excessive upstream withdrawal/utilization of water resulting in meandering and braiding of alluvial rivers, Extensive dredging needed due to high siltation, etc.

Wildfires blaze across Los Angeles, California

A 2023 study, published in journal Proceedings of National Academy of Sciences revealed that **10 of the largest California wildfires have occurred in the last 20 years.**

- Wildfires have become **more intense in the past few years** due to various reasons e.g. **climate change.**

Reasons for Wildfires

- **Anthropogenic activities:** Nearly **85% of all forest fires** across the US are started by humans, either deliberately or accidentally, according to the US Forest Service.
- **Dry winter:** Since October, Southern California has received negligible rain.
- **Santa Ana winds:** These winds **blow from October to January due to pressure difference** between Great Basin i.e. area between Rocky Mountains and Sierra Nevada in USA (high pressure) and California's coast (low pressure).
 - ⊖ As it comes down mountains, it compresses and heats up leading to drop in humidity making vegetation dry and prone to burning.
- **Climate change:** Rise in global temperatures over the years has led to warmer springs and summers.
 - ⊖ Such conditions cumulatively cause longer and more intense dry seasons, putting more moisture stress on vegetation.

Consequences of Wildfires

- **Toxic pollutants:** Wildfire smoke is a mixture of hazardous air pollutants, such PM2.5, NO2, ozone, aromatic hydrocarbons, or lead which endangers human lives and health.
- **Intensify climate change:** By Releasing large quantities of carbon dioxide and other greenhouse gases
- **Economic:** Destroy property, critical infrastructure and cultural heritage.
- **Environmental:** Result in loss of timber, biodiversity and have severe impacts on indigenous communities and tourism.
 - ⊖ Wildfire also affects soil Biome, organic matter and increases soil erosion.

Also In News



Interest Coverage Ratio (ICR)

According to the **Centre for Monitoring Indian Economy (CMIE)**, the **Interest Coverage Ratio (ICR)** of unlisted companies is at a **30-year high.**

About ICR

- **Definition:** It is a **financial ratio** that indicates the **ability of a firm to service its outstanding debt.**
- **ICR Formula:** **Company's Operating Profit (Earnings before Interest and Taxes)** divided by the Interest Expense (interest payable on borrowings such as bonds, loans, etc.)
- It is used by **lenders, creditors and investors** to determine the **riskiness** of lending capital to a company.
- It reflects the **short-term financial health** and **stability** of the firm.
 - ⊖ **Lower ICR** indicates **greater debt** and **higher risk** of the company's **bankruptcy** and vice versa.



Conductive Ink

Silver nanowire-based conductive ink technology was recently transferred to two Indian startups.

About Conductive Ink

- A paint that contains silver or carbon particles, making it electrically conductive.
- Unlike traditional circuits with copper wires, this ink allows circuits to be **drawn directly** onto surfaces.
- **Key Applications**
 - ⊖ Used to **repair** or enhance circuits on printed circuit boards
 - ⊖ Used in **flexible electronics** (e.g., foldable screens, keyboards, defrosters)
 - ⊖ Applications in **Radio Frequency Identification (RFID) tags, wearable devices, sensors, displays, and solar panels**
 - ⊖ Potential for interactive marketing or **signage through touch.**



Submarine Vagsheer

Mumbai-based Mazagon Dock Shipbuilders Limited handed over the sixth Scorpene submarine, Vaghsheer, of **Project P-75** to the Indian Navy.

About Vagsheer

- It is named after the sand fish, a deep sea predator of the Indian Ocean.
- It is the last of the series of six **Kalvari-class scorpion submarines.**
 - ⊖ Other five submarines of this class are **Kalvari, Khanderi, Karanj, Vela and Vagir.**

Project P-75

- Under the **Project, India** is building **French Scorpene-class submarines.**
 - ⊖ These have **diesel-electric propulsion systems.**
- **Submarines** will be equipped with the **indigenously developed Air Independent Propulsion (AIP) system** in them.
 - ⊖ AIP system allows non-nuclear submarines to **remain submerged for longer period.**



Gravitational Lensing (GL)

Physicists at Durham University, UK, have **discovered over 44 previously unknown stars** located behind a cluster of galaxies using **GL.**

About GL

- GL occurs when massive **objects distort and magnify light from objects** behind them (such as a **galaxy or a quasar**), acting as cosmic telescopes and making distant galaxies appear brighter
- This happens because the object's mass curves space and time, causing light to travel along a **curved path.**
- According to **Einstein's general theory of relativity**, mass causes spacetime to curve, and **light follows the curvature of spacetime.**
- A key effect of this lensing is magnification, allowing us to see distant, faint objects. The **Hubble Space Telescope** uses this effect to study galaxies far beyond its normal range.



UN World Economic Situation and Prospects 2025

The United Nations (UN) published its flagship report, **World Economic Situation and Prospects (WESP) 2025**.

- The report is produced by the **UN Department of Economic and Social Affairs (UN DESA)** in partnership with the **UN Conference on Trade and Development (UNCTAD)** and the **five UN regional commissions**.

Key Findings

- **Global subdued growth:** Trade tensions, high debt burdens, and geopolitical risks have subdued growth despite falling inflation and monetary easing measures. This decelerates progress on SDGs.
- Global economic growth is forecast at **2.8% for 2025 and 2.9% for 2026**.

India-specific findings

- ⊕ India is the **fastest growing large economy in the world**.
- ⊕ The Indian economy is forecast to **expand by 6.6% in 2025**, primarily supported by **solid private consumption and investment growth**.
- ⊕ India has a **robust labour market with strong employment indicators with labour force participation near record highs**. (Reserve Bank of India, 2024).



Rakhigarhi

Archaeologists have discovered a mud-brick **stadium** with precise engineering and a **marketplace** from 'Mature Harappan' phase at Rakhigarhi.

- The stadium exhibits a **seating arena** with an incline suitable for **perfect viewing**, highlighting the **sporting culture**.

About Rakhigarhi

- It is **one of the largest and oldest known Harappan sites**.
- It is located in **Hisar district, Haryana** in the **Ghaggar-Hakra river plain**.
- Three layers of **Early, Mature and Late phases of Indus Valley civilization** have been found at Rakhigarhi.
- It is also well-known as the site which has **yielded the only DNA evidence from the Harappan era**.

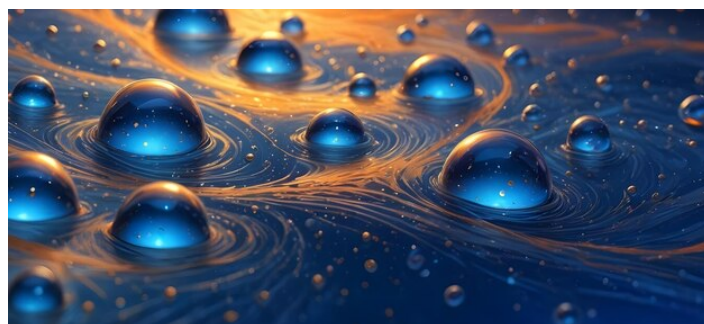
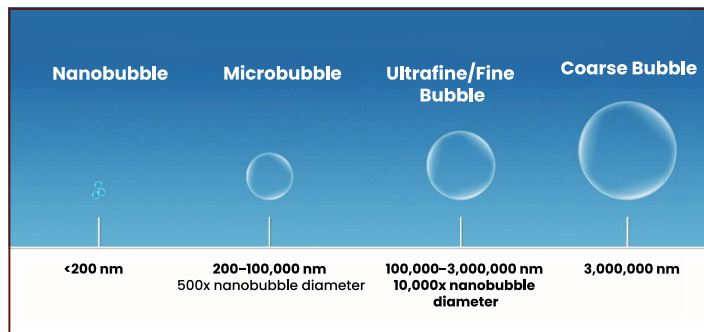


Nano Bubble Technology

Union Minister of State for Environment launched 'Nano Bubble Technology' for cleaning and purifying water of National Zoological Park, Delhi.

About the Nano Bubble Technology

- **Nanobubbles:** They are 70-120 nanometers in size, **2500 times smaller than a single grain of salt**.
 - ⊕ Nanobubbles have a **strong negative surface charge** that prevents them from **coalescing** and
 - ◆ It also **enables them to physically separate small particles and droplets** like emulsified fats, oils, and grease from water.
 - ⊕ Hydrophobic nature of nanobubbles combined with their surface charge **enable lifting organic and inorganic materials off surfaces** similar to surfactants.
- **Applications of Nano Bubble Technology**
 - ⊕ **Water Purification, Agriculture** (Enhance oxygenation of irrigation water), **Healthcare, food industry, Industrial cleaning** etc.



Place in News



Cuba (Capital: Havana)

India extended humanitarian assistance to Cuba in the aftermath of **Hurricane Rafael**.

Political Features:

- It is the **largest island country** in the **Caribbean Sea** which is part of the **Greater Antilles** in the **West Indies**.
- **Key Neighbouring countries:** United States (North and North east), Bahamas (North), Mexico (West), etc.
- **Maritime Boundaries:** Gulf of Mexico (West), and Atlantic Ocean (North)

Geographical Features:

- **Major rivers:** Cauto
- **Highest point:** Pico Turquino

